1.0 GENERAL

1.1 INSPECTION

.1 The Project Manager may, at its discretion, inspect all deciduous and coniferous trees at the source of supply prior to shipping to site.

.2 Approval of plant materials at source of supply will not impair the right of the Project Manager to inspect plants upon arrival at the site or during the course of construction reject plants which have been damaged or which, in any way, do not conform to the specifications.

.3 The Contractor shall stake the location of the trees, then notify the Project Manager who will then inspect the locations of the trees. There shall be a minimum distance of 3 metres (9.5 feet) from any irrigation system components.

.4 Inspection of material will be conducted within thirty (30) days after substantial completion of the work.

.5 Final inspection of all plantings will be made prior to the end of the specified guarantee period.

.6 At the time of inspection, all plants shall be alive and in a healthy, satisfactory growing condition.

2.0 PLANTING MATERIALS

2.1 PLANT MATERIALS

.1 All plant materials shall meet the horticultural standards of the Canadian Nursery Trades Association with respect to grading and quality.

.2 They shall be nursery grown in Alberta, under proper cultural practices as recommended by the Canadian Nursery Trades Association.

.3 Nomenclature of specified plants shall conform to the International Code of Nomenclature for Cultivated Plants and shall be in accordance with the approved scientific names given in the latest edition of Standardized Plant Names. The names of varieties not named therein are generally in conformity with the names accepted in the nursery trade.

.4 Any plants dug from native stands, wood lots, orchards or neglected nurseries and which have not received proper cultural maintenance as

advocated by the Canadian Nursery Trade Association, shall be designated as 'collected plants'.

.5 The use of 'collected plants' will not be permitted unless approved in writing, in advance, by the Project Manager.

.6 Plants shall be true to type and structurally sound, well-branched, healthy and vigorous and free of disease, insect infestations, rodent damage, sun scald, frost cracks and other abrasions or scars to the bark. They shall be densely foliated when in leaf and have a healthy, well developed root system. Pruning wounds shall show vigorous bark on all edges and all parts shall be moist and show live, green cambium tissue when cut. Trees shall have straight stems unless that would be uncharacteristic and shall be well and characteristically branched for the species or variety.

.7 All plant materials shall conform to the measurements specified in the Plant List except that the plants larger than specified may be used if approved by the Project Manager.

.8 All plants shall be measured when the branches are in their normal position. Heights and spread dimensions specified refer to the main body of the plant and not from branch tip to root base or from branch tip to branch tip. Where trees are measured by calliper, it will be in accordance with the Canadian Nursery Trades Association specifications for Nursery stock.

.9 The types of species of trees shall be as indicated on the approved drawings. Trees shall conform to the quality, and measurements shall be in accordance with the 'Guide Specifications for Nursery Stock' of the Canadian Nursery Trades Association and following specifications.

.10 Trees are to be supplied by a grower or nursery in a similar climatic zone unless approved by the Project Manager.

.11 Any plant material not in accordance with specifications will be a deficiency and will be rejected by the Project Manager or his designate.

.12 The Contractor shall be required to indicate the source of plant material and supply the Project Manager with a list of where the plant material was grown and/or purchased. The Project Manager may reject any plant material that is not an Alberta source.

2.2 SUBSTITUTION

.1 All plants shall be supplied as specified on the plant list. Substitutions will not be allowed unless approved in writing by the Project Manager.

.2 Notice, in writing, must be supplied in a timely manner to the Project Manager when applying for substitutions.

.3 Proof that plant species and sizes specified are unobtainable prior to making substitutions must be supplied in a timely manner.

.4 Substitution of plants larger than specified may be permitted with no increase in contract price.

2.3 PLANTING MEDIA

.1 Materials

.1 Peat moss - decomposed plant material, fairly elastic and homogeneous, free of decomposed colloidal residue, wood, sulphur and iron, with a pH value ranging from 6.5 to 7.5.

.2 Sand - Clean, sharp sand passing 2 mm (.08 inches) sieve, free of impurities, chemical or organic matter.

.2 Soil mix shall be one (1) part fertile topsoil, two (2) parts existing soil, one (1) part horticultural peat moss and one (1) part sharp sand.

2.4 DIGGING OF PLANTS

.1 All plants shall be dug and delivered to the site as specified on the plant list. Immediately after digging, the root system shall be kept moist to prevent drying out until planted.

.2 Plants specified 'Bare Root' shall be dug and moved while dormant, with the major portion of the fibrous root system provided. The root system shall extend a minimum of 380 mm (15.0 inches) diameter per 25 mm (1.0 inches) of tree caliper. Immediately after digging, wrap the roots in wet burlap and keep burlap wet during transport and storage.

.3 All plants specified 'Ball & Burlap' shall be dug and moved while dormant, with the major portion of the fibrous root system provided.

.4 All root balls less than 45 cm (17.65 inches) in diameter shall be burlapped. Balls from 45 cm to 75 cm (17.65 inches to 29.55 inches) in diameter shall be double burlapped, or burlapped and wire basketed.

.5 The sizes of root balls for trees shall be as specified in the Canadian Nursery Trades Association specifications for nursery stock.

.6 All plants specified may be moved with a mechanical tree spade providing adequate roots are kept as specified.

.7 Container grown plants must have been grown in containers for a minimum of three months, and have established a root system which will hold the soil when removed from container.

.8 Before removing plants from containers for planting, the plants shall be well watered to reduce injury.

.9 All plant material in containers shall be checked to ensure that there are no encircling or girdling roots. If encircling roots are present, use a sharp knife to make two vertical cuts opposite each other on the sides of the root ball through the encircling roots.

.10 Tree hole size shall be 150 mm (6 inches) larger than the root ball size except at the bottom. The root ball diameter shall coincide with the Canadian Nursery Trades Association specifications for nursery stock.

2.5 HANDLING OF PLANTS

.1 Trees (in foliage), moved by the Tree Spade Method, may be moved up to 35 km (22 miles) without wind protection, provided road speed does not exceed 30 km/hr. (20 mph). If moved at higher speeds or from a greater distance than specified above, trees must be protected from the wind by an enclosed truck or tarpaulin.

.2 Trees that are moved by the Basket Method or Balled and Burlap Method must be covered with a tarp if transported on an open vehicle.

.3 Plants with broken or abraded trunks or branches are not acceptable.

.4 Root balls, trunks, branches and leaves shall be protected from drying, frost or damage and be kept moist until planted.

.5 Container stock should be handled as much as possible by the pot or basket only, in order to reduce breakage.

.6 Trees are not to be lifted by the trunks.

.7 All plants should be unloaded and checked immediately upon arrival and should be watered if necessary. Trees with cracked or broken root balls will not be accepted.

.8 All plant material which cannot be planted immediately upon arrival shall be well protected with soil or similar material to prevent drying out or if necessary stored in a dry, weatherproof place in such a manner that their effectiveness will not be impaired. Plants shall not remain unplanted for longer than three (3) days after arrival on site.

.9 Plant material shall not be moved under the following conditions:

.1 temperatures in excess of 25 degrees C (77 degrees F)
.2 extreme windy conditions
.3 bareroot material must be moved while dormant

2.6 MULCH

.1 Random sized wood chips, twigs and leaves collected from a wood chipper being fed tree limbs, branches and brush.

.2 Contractor to supply, haul and place mulch. Mulch may be supplied by the Parks and Recreation Department, subject to availability of supply.

3.0 EXECUTION

3.1 PLANTING

.1 Plant trees, only during periods that are normal for such work as determined by local weather conditions, to ensure success with the plant material.

.2 All trees shall have at least 150 mm (6.0 inches) of growing medium surrounding the sides of the root ball. Excess excavated material shall be removed from the site. Measure minimum depth of plant pit from downward side of slope when planting on incline.

.3 Where necessary, holes dug by a mechanical tree spade shall be scarified to ensure that they do not have glazed sides.

.4 The Contractor shall contact the Utility Companies or City Departments 48 hours prior to the start of work, and coordinate the locates for all underground obstructions such as electric, gas, water, communication and irrigation lines.

.5 After the Contractor has completed the utility locates, the Contractor shall stake the location for the trees and then notify the Project Manager who will then inspect the locations for the trees. There shall be a minimum of 3 metres (9.85 feet) away from any irrigation system components.

.6 Plants shall be set exactly in the centre of the pits and at the same relation to grade as originally grown.

.7 Plant material shall be faced to give the best appearance or relationship to adjacent structures, walkways or park features.

.8 Planting medium shall be firmly tamped in place in such a manner that the plant retains its vertical position. Particular care shall be taken to ensure that no air pockets remain under or around the roots. The planting medium shall be thoroughly watered immediately after tamping. All non-porous containers shall be removed, including top ring of wire basket. If a fibre or peat pot remains, it must not be left above the soil surface as this promotes "wick" evaporation.

.9 When growing medium is up to about two-thirds of the root ball height, ties shall be cut and the top portion of the burlap on Ball & Burlap, plants shall be folded back carefully, not disturbing the root ball. All types of ties or wrappings and burlap are to be removed.

.10 The top ring of the wire baskets are to be folded below grade and the burlap removed.

.11 Damaged or broken roots should be cut back with a sharp knife to living parts remaining.

.12 Bare-root plants are to be placed on a cone-shaped mound of soil at the bottom of the hole, roots must not be doubled over, crowded or crossed. Spread roots out gently and evenly in the planting pit.

.13 In exceptional cases where a tree spade cannot be used to dig holes, the following shall apply:

a) holes shall be dug by hand or backhoe
b) the soil from such holes shall be removed by the Contractor, at his expense, to an approved disposal site

.14 Each plant other than those in planting beds shall have an earth saucer at its base which shall have a dish as large as the excavated area. The saucer shall be constructed so as to retain water around the roots of the plant. The retaining ring around the saucer shall be 100 mm (4.0 inches) and constructed to retain water.

.15 There shall be 200 mm (8 inches) of mulch placed in the tree pit, with a 1 m diameter circle around the base of the tree. The mulch shall be level with the adjacent turf. The mulch shall not be placed immediately adjacent to the tree

trunk and shall be placed a minimum of 50 mm (2 inches) away from the trunk of the tree.

.16 Tree wraps consisting of plastic tree guards, requiring no staples or fasteners, available 760 mm (30 inch) lengths shall be installed around each tree trunk.

3.2 WATERING

.1 Watering In - Trees shall be place upright in the tree hole supported by 150 mm (6.0 inches) of planting media between the ball and each side of the tree hole. Planting media shall be watered in to remove all air spaces. Tree holes shall then be filled to grade with planting media and watered in. The 100 mm (4.0 inch) retaining ring of planting media constructed around the perimeter of the tree hole must be kept intact to ensure adequate retention of water. Ensure the tree ball is at the same height that it was growing at in the nursery.

.2 Watering shall be carried out when required and with sufficient quantities to prevent plants and underlying growing medium from drying out.

3.3 STAKING AND TYING

.1 Trees shall be braced upright in position by metal stakes in accordance with the following table:

Coniferous:

Tree Height	Tree Support Method
1.5 - 2.5 m (4 ft. 10.7 in. - 8 ft. 2.0 in.)	1 stake with 1 tie
2.5 - 3.0 m (8 ft. 2.0 in. - 9 ft. 10.1 in.)	2 stakes with 2 wires
3.0 - 3.5 m (9 ft. 10.1 in. - 11 ft. 5.8 in.)	3 stakes, 3 ties

Deciduous:

Tree Calliper	Tree Support Method
30 mm (1.20 inch)	1 stake with 1 tie
30 - 60 mm (1.20 in. - 2.50 in.)	2 stakes with 2 ties
60 - 120 mm (2.50 in. - 4.5 in.)	2 stakes with 2 ties

.2 The Contractor shall provide stakes for support of trees and shall be metal stakes 50 mm x 50 mm x 2.5 m (2" x 2" x 8' 2.0") long. Tree stakes shall be installed 2 feet away from the tree trunk and the ties shall be installed in the

top one third of the tree. Ties shall be placed around the trunk to provide adequate support and to prevent damage.

.3 New black rubber hose, two ply, reinforced and 3 mm (.125 in.) in diameter, or wire encased in rubber, shall be used to encase wires where they circle the trunk or branches to protect the tree.

3.4 RESTORATION

.1 Any damage that may be caused by the Contractor, his employees, his equipment or subcontractors shall be restored to pre-construction condition at the Contractor's expense and to the satisfaction of the Project Manager.

.2 Disposal of all excess material, off site in an approved disposal site.

.3 Broom cleaning of pavement, concrete and sidewalks. Raking grass to ensure it is free of planting materials and/or loam.

.4 Leave site in a neat condition.

END OF SECTION